COMMENTS ON *SIDALCEA* (MALVACEAE) OF THE KLAMATH MOUNTAINS OF OREGON AND CALIFORNIA

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ABSTRACT

Analysis of the taxonomic status of *Sidalcea setosa* and related taxa from the Klamath Mountains of southwest Oregon and northwest California resulted in the following conclusions: (1) *Sidalcea setosa* should be treated as a synonym of *S. oregana* var. *spicata,* (2) *Sidalcea virgata* should be treated as *S. malvaeflora* ssp. *asprella* var. *virgata* and, (3) the relationship between *S. malvaeflora* ssp. *asprella* and *S. malvaeflora* ssp. *nana* should be investigated further to determine whether ssp. *nana* might not be submerged into ssp. *asprella.*

Botanists have recently expressed concern over the rarity of *Sidalcea setosa* C. L. Hitchc. ssp. *setosa,* placed in the Oregon Natural Heritage Data Base's List 1, "taxa threatened throughout range," in 1989 (Kagan et al. 1989). *Sidalcea setosa* is a Candidate 2 species for proposed listing as a threatened or endangered species by the U.S. Fish and Wildlife Service. Since state and federal agencies must manage sensitive plant species and their habitats, there is a need for practical classifications that permit as clear a separation of taxa as is taxonomically defensible.

In the first monograph on *Sidalcea,* Roush (1931) did not separate *Sidalcea setosa* from *S. spicata* (Regel) Greene. She felt that *S. spicata* exhibits highly plastic morphology. Her explanation for variability hinged on ecology: "a slight difference in the amount of available moisture (both soil and atmospheric) may make a great difference in the degree and kind of pubescence in this species" (Roush 1931, p. 166). She also noted that inflorescence, leaf form, and carpel architecture are variable. She did not address stem bases. Six of the specimens Roush examined were later annotated by Hitchcock as *Sidalcea invisa,* a herbarium name later published as *Sidalcea setosa* (Hitchcock 1957).

Sidalcea setosa was removed from the *oregana* complex by Hitchcock in his monograph on the perennial species of *Sidalcea* (1957). He perceived *S. setosa* to be intermediate between *S. oregana* (Nutt.) A. Gray ssp. *spicata* (Regel) C. L. Hitchc. and *S. malvaeflora* (DC.) Gray ex Benth. ssp. *asprella* (Greene) Jepson. *Sidalcea setosa* was described as sharing only range and stellate stem pubescence with *S. malvaeflora* ssp. *asprella.* In all other characters it was most closely related to *S. oregana* ssp. *spicata.*

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Hitchcock (1957, p. 53) states "there seems good reason to maintain the taxon *setosa* as distinct from the *oregana-spicata* complex, on the basis of its distinctive range, more nearly rhizomatous habit, more prominently reticulated carpels, and different pubescence".

Roush (1931) recognized only one of the many members of the *malvaeflora* group in the Klamath Mountain region, *S. asprella* Greene. The characters that distinguished *S. asprella* are its stellate pubescence, similar basal and cauline leaves, and erect stature. She considered *S. elegans* Greene to be conspecific with *S. asprella.* Roush considered *S. virgata* T. J. Howell to be a Willamette Valley (Oregon) endemic. Although "the leaves and pubescence (of *S. virgata*) are much like those of *S. asprella*" she wrote, "the inflorescence is entirely distinct" (Roush 1931, p. 179). In Roush's opinion, *S. asprella* and *S. virgata* are related through *S. malvaeflora,* a coastal species, with which they share similar leaf form and pubescence.

Hitchcock (1957) divided Roush's *S. asprella* in the Klamath Mountains into 3 subspecies of *S. malvaeflora* (DC.) Gray ex Benth.: *asprella* (E. Greene) C. L. Hitchc., *elegans* (E. Greene) C. L. Hitchc., and *nana* (Jeps.) C. L. Hitchc. He also reduced *S. virgata* to *S. malvaeflora* ssp. *virgata* (T. J. Howell) C. L. Hitchc. and noted that the subspecies *virgata* and *asprella* "are maintainable only on very inconsistent morphological characters, and since it is known that they interbreed freely, they may more properly be treated as fairly well-defined geographical or ecological races . . ." (Hitchcock 1957, p. 13). More recently (Hitchcock and Cronquist 1973) he reinstated *S. virgata* to the rank of species.

Hitchcock's treatment of *S. malvaeflora* ssp. *asprella* and ssp. *virgata* centers around stem and calyx pubescence. "In general 'typical' *virgata* can be distinguished from 'typical' *asprella* because of the finer, uniform stellae of the calyx and longer, softer hairs of the lower stem, but at the s(outhern) limit of its range, in s(outhern) Douglas and Josephine cos(.), it intergrades with ssp. *asprella* . . ." (Hitchcock 1957, p. 25).

Sidalcea malvaeflora ssp. *nana* is also similar to ssp. *asprella.* Hitchcock (1957, p. 29) pointed out, "Jepson referred the plant [ssp. *nana*] to *S. reptans,* largely (it would seem) on the basis of its creeping habit, since otherwise it has little resemblance to *reptans,* the leaves, inflorescence, calyx, and carpels being similar to those of ssp. *asprella.*" According to Hitchcock (1957, p. 29), *S. malvaeflora* ssp. *nana* is "distinguished chiefly by its very fine stellae."

Sidalcea malvaeflora ssp. *elegans* is also closely related to and sympatric with ssp. *asprella,* but may be easily distinguished by its large, few-flowered, often glabrous, slender inflorescences, trailing slender rhizomatous habit, dissected cauline leaves, and possible serpentine endemism. Since this subspecies is so clearly distinct from *S. malvaeflora* ssp. *asprella,* its taxonomic identity will not be discussed further.

Methods

Seventy-four *Sidalcea* sites in Josephine and Jackson counties of Oregon and Del Norte, Siskiyou, and Trinity counties of California (Fig. 1) were visited between June and August, 1989. Data such as soil type and moisture content, associated species, growth form, and population size were recorded for each population. I collected one to three specimens from each population. Eight hundred and fifty-two specimens from eight regional herbaria were borrowed for morphological analysis.

I examined the morphological characters used by Hitchcock to separate *S. setosa* and *S. oregana* ssp. *spicata* (Table 1) using specimens collected in the field, all herbarium specimens annotated as *S. invisa* and *S. setosa* by Hitchcock, and one herbarium specimen of *S. oregana* ssp. *spicata* from each county in which it was collected. Due to the lack of stem bases in some of the specimens examined, this character was not used for comparison.

Morphological characters used by Hitchcock to separate *S. malvaeflora* ssp. *asprella* and ssp. *virgata* (Table 2) were examined in specimens collected in the field, one herbarium specimen of *S. malvaeflora* ssp. *asprella* and 2 herbarium specimens of *S. malvaeflora* ssp. *virgata* from each county in which they were collected.

Results

The historical range of plants recognized as *S. setosa* encompasses Douglas, Josephine, Jackson, and Curry counties in Oregon and Siskiyou County in California. The populations occur in valleys (Rogue River watershed, Umpqua Valley, Roseburg, Glendale, Grant's Pass, and Edgewood) as well as in mountains (Mt. Ashland, High Cascades). This range seems to be within the central part of the range of *S. oregana* var. *spicata,* which extends north to the middle Cascades of Oregon and south to the middle of California, barely entering western Nevada (Hitchcock, 1957 Map 3). The ranges are not mutually exclusive.

Results of comparison of morphological characters show that there is variability in some characters that should be, according to Hitchcock's treatment, unique to *S. setosa* (Table 3). Both carpel ornamentation and stem pubescence seem to be consistent; *spicata* has smooth carpels and hirsute stem pubescence and *setosa* has slightly reticulate carpels and stellate stem pubescence. Bristly calyx pubescence, on the other hand, is not unique to *S. setosa*; roughly half of the *spicata* specimens examined had bristly stellae.

One may understand why botanists have been confused over the identity of these two groups in the study area; the high predominance of hirsute stem pubescence (*spicata* character) combined with bristly calyces (*setosa* character) in specimens collected in 1989 is perplexing. A further analysis of specimen characters from the study area

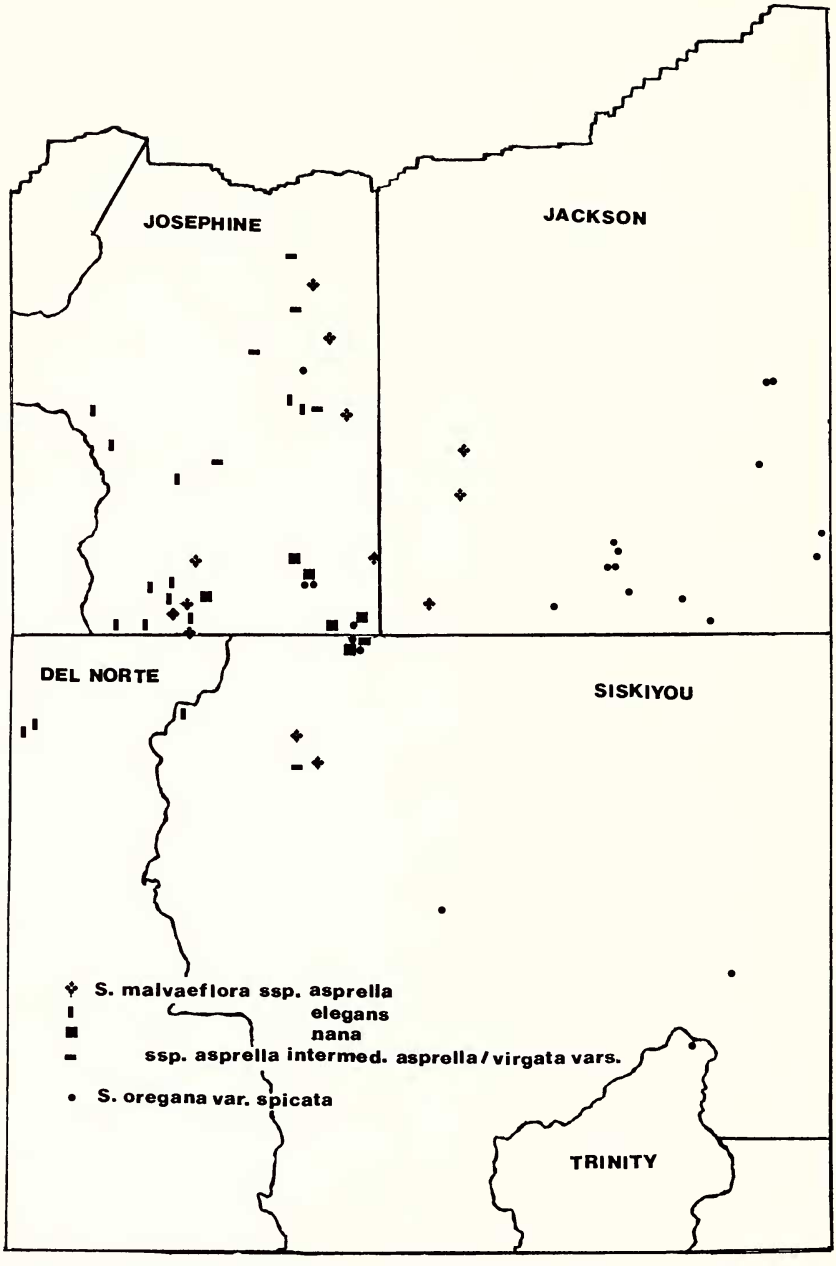

FIG. 1. Distribution of *Sidalcea* species in the Klamath Mountains of Oregon from sites visited in 1989.

TABLE 1. MORPHOLOGICAL CHARACTERS OF *SIDALCEA SETOSA* AND *SIDALCEA OREGANA* VAR. *SPICATA* USED BY HITCHCOCK TO SEPARATE THE TAXA.

	setosa	*spicata*
Stem	short rootstocks	no rootstocks
Carpels	reticulate	smooth to lightly reticulate
Stem pubescence	stellate w/longer simple or forked hairs (hirsute or stellate)	soft-hirsute, some w/ forked to 4-rayed hairs, occasionally stellate (glabrous)
Calyx pubescence	bristly stellate	uniformly short stellate to conspicuously hirsute

indicates that 26% of specimens had hirsute stem pubescence and bristly calyces, 48% had *spicata*-like characters, and 26% had *setosa* characters. One specimen from Baker County, Oregon has both hirsute stem pubescence and a bristly calyx.

The variability in morphology in the study area combined with duplication of characters outside of the study area leads me to conclude, like Roush, that *S. setosa* is part of a highly variable *S. oregana* var. *spicata* whose pubescence varies with ecological factors and whose carpel characters are also variable.

Comparison of morphological characters in *S. malvaeflora* ssp. *asprella* and ssp. *virgata* (Table 2) leads to the conclusion that the separation of the "typical" phases of *S. malvaeflora* ssp. *asprella* and ssp. *virgata* are possible only at the limits of their ranges. All of the following characters overlap: lower stem pubescence, rhizomatous habit, calyx length and shape, flower number, petal length, pedicel length, and carpel characters. Both subspecies have stellae of uniform lengths and stellae of mixed lengths on their calyces (Table 4). They both have predominantly stellate stem pubescence. The one character that separates the two in herbarium specimens is

TABLE 2. MORPHOLOGICAL CHARACTERS OF *SIDALCEA MALVAEFLORA* SSP. *VIRGATA*, SSP. *ASPRELLA* AND SSP. *NANA* USED BY HITCHCOCK TO SEPARATE THE TAXA.

	virgata	*asprella*	*nana*
Calyx pubescence	uniformly, densely, finely stellate	densely, finely stellate with a scattering of longer stellae	uniformly, densely, finely stellate
Stem pubescence	long, soft several-rayed hairs (hirsute, glabrous)	rough-pubescent stellate and simple hairs (stellate)	very finely stellate
Inflorescence structure	often closely many-flowered	open, loosely-flowered	open, loosely-flowered

TABLE 3. COMPARISON OF CHARACTERS USED IN HITCHCOCK'S TREATMENT OF *SIDALCEA SETOSA* AND *OREGANA* VAR. *SPICATA* IN HERBARIUM SPECIMENS AND SPECIMENS COLLECTED IN 1989.

	spicata (herb.)*	*setosa* (herb.)	field (1989)
Carpel architecture			
reticulate	1	9	2
smooth	11	1	8
Stem pubescence			
stellate	2	20	6
hirsute	19	0	17
mixed	2	1	1
glabrous	4	0	3
Calyx pubescence			
hirsute	4	0	8
bristly	12	20	14
short stellate	11	0	7

* N = 27 *spicata* from the herbarium; N = 22 *setosa* from the herbarium; N = 27 field specimens collected in 1989. See list.

inflorescence structure. Specimens annotated as intermediate between *asprella* and *virgata* have congested racemes, but are not spicate. In specimens collected in 1989, I initially used Greene's type description of *S. asprella,* a plant with basal and cauline leaves essentially alike, to make determinations. Examination of specimens from throughout *S. asprella*'s range showed that only small localized areas (Butte and Yuba counties in California and Jackson county in Oregon) harbor plants with the cauline leaf type described by Greene, demonstrating that this character is not taxonomically useful. Because inflorescence structure seems to be the only differentiating character, I propose these taxa be combined into one variable group, *Sidalcea malvaeflora* ssp. *asprella,* whose varieties intergrade, as Hitchcock pointed out, in the study area.

Because of its usually distinct inflorescence and more northerly range, I think *S. virgata* warrants varietal status under ssp. *asprella.* Table 5 compares attributes of the two varieties of ssp. *asprella,* var. *asprella* and var. *virgata* (Howell) Dimling.

The one character used, short stellate pubescence of calyx and stem, to separate ssp. *nana* from ssp. *asprella* has not proven useful. Based on collections from the study area, ssp. *nana* has stem pubescence composed of stellae of mixed lengths and short stellate calyx pubescence. Approximately 25% of the ssp. *asprella* specimens examined had similar calyx pubescence and most had similar stem pubescence. Further investigation into the relationship between these two subspecies is needed using specimens from throughout their reported ranges. If the pattern observed in this study area holds true

TABLE 4. COMPARISON OF CHARACTERS USED IN HITCHCOCK'S CLASSIFICATION OF *SIDALCEA MALVAEFLORA* SSP. *VIRGATA* AND *ASPRELLA* FROM HERBARIUM SPECIMENS AND SPECIMENS COLLECTED IN 1989.

	virgata (herb.)*	*asprella* (herb.)	field (1989)
Calyx pubescence			
uniform	4	6	4
stellae of mixed lengths	6	13	14
Stem pubescence			
stellate	7	13	7
hirsute	0	1	6
mixed	2	2	4
glabrous	1	3	1
Inflorescence structure			
loose	0	19	12
spicate	10	0	0
congested	0	0	6
Cauline leaf shape			
similar to basal	0	5	4
dissected	10	14	14

* N = 10 *virgata* and N = 19 *asprella* specimens from the herbarium; N = 18 specimens from the study area. See list.

throughout its distribution, this subspecies will probably not warrant taxonomic recognition.

KEY TO *SIDLACEA* SPECIES OF THE KLAMATH MOUNTAINS

a. Plants with loosely arranged inflorescences (spicate in var. *virgata*); petals 10–25 mm; calyces 5–12 mm, short stellate often with slightly longer stellate hairs; pedicels 3–10 mm; carpels reticulate; inhabiting dry woodlands, clearcuts and low elevation meadows; flowers May to July. ..... *Sidalcea malvaeflora*
b. Plants with a spicate inflorescence, 122–366 m; mixed woodlands, roadsides; May–June. ..... ssp. *asprella* var. *virgata*
b'. Plants with open, loosely arranged inflorescences; 183–1829 m; habitats various; May–July.

TABLE 5. COMPARISON OF CHARACTERS DISTINGUISHING *SIDALCEA MALVAEFLORA* SSP. *ASPRELLA* VAR. *ASPRELLA* FROM VAR. *VIRGATA*.

	var. *asprella*	var. *virgata*
Geographical distribution	Fresno Co., CA–Douglas Co., OR	Siskiyou Co., CA–Yamhill Co., OR
Inflorescence	loosely-flowered	spicate
Stem pubescence	usually stellate, some simple hirsute or glabrous	stellate
Habitat	valley to mountains	valley

c. Plants mat-forming; slender rhizomes, infrequently with a taproot; upright stems slender and glabrous above; inflorescence usually simple; mixed woodlands, oak flats, manzanita/pine parks, often in serpentine soil; 122–805 m; May–June. ..... ssp. *elegans*

c′. Plants of larger stature, clump-forming; woody rhizomatous; stems usually stout, rarely glabrous; inflorescence with axillary racemes; mixed or coniferous woodlands, clearcuts, low elevation meadows; 183–1829 m; June–July.

d. Calyx pubescence uniformly short stellate; stem pubescence long/short stellate mixture; open coniferous woodlands, clearcuts; 914–1829 m; July. ..... ssp. *nana*

d′. Calyx pubescence short stellate, most with a mix of longer stellae on the midveins and margins; stem pubescence stellate, sometimes hirsute or glabrous; openings in mixed woodlands, meadows; 183–1036 m; June–July. ..... ssp. *asprella* var. *asprella*

a′. Plants with spicate raceme; petals 5–15 mm; calyces 4–8 mm, pubescence varying from short stellate to bristly stellate to long simple hairs; pedicels 1–3(5) mm; carpels usually smooth, sometimes lightly reticulate; meadows; 914–1829 m; July–August. ..... *S. oregana* var. *spicata*

Taxonomic Treatment

1. *Sidalcea oregana* (Nutt. in T.& G.) Gray var. *spicata* (Regel) Jeps., Fl. Calif. 2:492. 1836.—*Callirhoe spicata* Regel, Gartenfl. 21: 291. pl. 737. 1952.—*S. spicata* Greene, Bull. Calif. Acad. Sci. 1:76. 1885.—*S. oregana* ssp. *spicata* (Regel) C. L. Hitchc., Univ. Washington Publ. Biol. 18:64. 1957.—Type: Plate in Gartenflora, drawn from seeds supposedly collected in the Sierra Nevada of California.

Sidalcea spicata var. *tonsa* Peck, Madrono 6:14. 1941.—Type: USA, Oregon, Crook Co., Big Summit Prairie, 1941, *Peck 17224* (WILLU!).

Sidalcea setosa C. L. Hitchc., Univ. Wash. Publ. Biol. 18:53. 1957.—*Sidalcea invisa* C. L. Hitchc., nom. nud. in herb.—Type: USA, Oregon, Josephine Co., Grant's Pass, June 15, 1915, *Cusick 4796* (WS!).

Representative specimens. USA, California, Alpine Co.: N of Red L., *Alexander* and *Kellogg 3541* (UC). Butte Co.: Jonesville, *Copeland 659* (CAS). El Dorado Co.: Camp Sacramento, July–August, 1931, *Vortrilde s.n.* (CAS). Humboldt Co.: Box Camp Meadow, *Tracy 17822* (CAS). Lassen Co.: Dixie Valley, 3 July, *Baker s.n.* (UC). Modoc Co.: Eight Mile Cr., *Alexander* and *Kellogg 4976* (CAS). Mono Co.: Between Mammouth and Lake George, 21 June 1925, *Larson s.n.* (CAS). Nevada Co.: Donner L., 10 July 1903, *Heller s.n.* (CAS). Placer Co.: Summit Valley, *Howell 18570* (UC). Plumas Co.: Prattville, 20 July 1882, *Austin s.n.* (UC). Shasta Co.: Lassen National Park near Summit L., *Ferris* and *Lorraine 10468* (CAS). Sierra Co.: Webber L., 6–12 August 1927, *Haley s.n.* (CAS). Siskiyou Co.: Taylor L., *Alexander* and *Kellogg 5609* (CAS); Azalea L., *Rolle*

279 (OSC, ORE); N of Buck Pk., *Rolle 270* (OSC); Shakleford Cr. Trail, *Dimling 155* (OSC); Deadfall Meadow, *Dimling 154* (OSC, ORE, NY); Edgewood, *Dimling 154* (OSC). Tehama Co.: Government Flat, *Baker 9800* (CAS). Trinity Co.: Deer Cr. on trail to Red Mtn., *Kruckeberg 3749* (WTU). Nevada, Douglas Co.: L. Tahoe, *Kruckeberg 3655* (WTU). Ormsby Co.: Marlette L., *Allen 536* (CAS). Washoe Co.: Jones Canyon, 22 July 1907, *Brown s.n.* (CAS). Oregon, Baker Co.: 5 km W of Whitney, *Peck 10351* (CAS). Clackamas Co.: Mt. Hood, summer 1929, *Van Dyke s.n.* (UC). Deschutes Co.: island in Deschutes R. at Tumalo, *Whited 252* (CAS). Douglas Co.: *Roseburg, *Howell 472* (ORE); *Umpqua Valley, June 1887, *Howell s.n.* (ORE). Harney Co.: 42 km N of Burns, *Thompson 13305* (WTU). Jackson Co.: *Ashland Pk., *Thompson 12341* (WTU, OSC); *High Cascades, June 1927, *Heckner s.n.* (WTU, OSC); *near Woodville, *Peck 6870* (OSC); *Mt. Ashland, 19 July 1938, *Rossbach* and *Rossbach s.n.* (UW); 42 km E of Ashland, *Dimling 130* (OSC); Johnson Creek, *Dimling 131* (OSC); Deadwood Cr., *Dimling 146* (OSC, ORE); Pilot Rock Rd., *Dimling 147* (OSC, ORE); Wagner Butte, *Dimling/Rolle 150, 151* (OSC, ORE); Wagner Butte Tr., *Dimling/Rolle 152* (OSC, ORE), 153 (OSC, ORE, NY); Mt. Ashland, *Dimling 156* (OSC, ORE, NY); Wrangle Camp, *Dimling 157* (OSC); Fish L. *Rolle 281, 282* (OSC). Jefferson Co.: Camp Sherman, 8 August 1853, *Constance* (UC). Josephine Co.: Grant's Pass, *Dimling 117* (OSC); Bigelow Trailhead, *Dimling 144* (OSC, ORE); Bigelow L., *Dimling 145* (OSC, ORE, NY); *Grant's Pass, 20 May 1886, *Henderson s.n.* (CAS); *Grant's Pass, 26 June 1886, *Henderson s.n.* (CAS); *Grant's Pass, *Cusick 4796* (WS); *Grant's Pass, *Cusick 4787* (WS); *Grant's Pass, 20 June 1886, *Henderson s.n.* (ORE); *Glendale and Grant's Pass, *Henderson 151* (ORE); *Grant's Pass, *Peck 6871* (OSC); *Grant's Pass, *Peck 6864* (OSC); *near Glendale, 12 July 1887, *Henderson s.n.* (ORE); *Grant's Pass, 20 June 1889, *Henderson* (UW); *Grant's Pass, *Canby 89* (OSC); *Grant's Pass, *Hitchcock 19601* (WTU); *Grant's Pass, *Peck 6863* (OSC); *Grant's Pass, *Peck 6865* (OSC). Klamath Co.: S of Klamath Falls, *Mott 6765* (CAS). Lake Co.: Whitworth Cr., *Applegate 7851* (CAS). Umatilla Co.: meadow, *Peck 6869* (OSC). Wallows Co.: Buckhorn Springs, 29 June 1934, *Peck 18334* (UC). Unknown: *Southern Oregon, 12 July 1887, *Henderson s.n.* (CAS, ORE).

* Denotes specimens annotated as *S. invisa* by C. L. Hitchcock.

One population cited as a possible *setosa/asprella* intermediate (Hitchcock 1957), *Keck 4815,* was seen in 1989 and was determined as *S. malvaeflora* (DC.) Gray ex Benth. ssp. *asprella* (Greene) Jepson var. *virgata* Dimling because of stellate pubescence, congested inflorescence and location.

2. *Sidalcea malvaeflora* (DC.) Gray ex Benth. ssp. *nana* (Jeps.) C. L. Hitchc., Univ. Washington Publ. Biol. 18:29. 1957.—*S. reptans* Greene var. *nana* Jeps., Fl. Calif. 2:489. 1936.—TYPE: USA, California, Trinity Co., Yollo Bolly Mts., Soldier's Ridge, *Jepson 14601* (JEPS? not seen).

Representative specimens. USA, Oregon, Jackson Co.: USFS Road 1030/400, *Dimling 139* (OSC); Arnold Mine, *Dimling 140* (OSC). Josephine Co.: USFS Rd. 4613, *Dimling 143* (OSC); Elder Cr., *Dimling 134* (OSC); Bigelow Salvage, July 1989, Wolf/*Seda/Sisko s.n.* (OSC). California, Siskiyou Co.: NE of Buck Pk., *Rolle 271* (OSC); NW of Azalea L., *Rolle 278* (OSC).

3. *Sidalcea malvaeflora* (DC.) Gray ex Benth. ssp. *asprella* (Greene) C.L. Hitchc. var. *asprella,* Univ. Washington Publ. Biol. 18:25. 1957.—*S. asprella* Greene., Bull. Calif. Acad. Sci. 1:78. 1885.—*S. malvaeflora* var. *asprella* Jeps., Man. Fl. Pl. Calif. 630. 1925.—TYPE: USA, California, Yuba Co., near Camptonville, 1 July 1884, *Greene s.n.* (ND? not seen).

Representative specimens. USA, California, Amador Co.: SE of Plymouth, *Nordstrom 795* (UC). Butte Co.: Oroville–Forbestown Rd., *Hitchcock 19536* (ORE). Calaveras Co.: W of Avery, *Tracy 5713* (UC). El Dorado Co.: N of Placerville, *Wiggins 11209* (WS). Fresno Co.: Shaver L., 18 May 1940, *Winblad s.n.* (CAS). Humboldt Co.: Bridgeville, 15 June 1893, *Blankinship s.n.* (UC). Lassen Co.: Big Valley Mtns., *Eastwood* and *Howell 7982* (CAS). Mariposa Co.: Wawona, *Howell 171* (CAS). Modoc Co.: Lakeshore, July 1898, *Austin s.n.* (CAS). Nevada Co.: Nevada City, 21–22 June 1912, *Eastwood s.n.* (CAS). Placer Co.: W of Baxter, *Hitchcock 6338* (WTU). Plumas Co.: Jamison Cr., *Howell 27620* (CAS). Shasta Co.: E of Redding, *Hitchcock 6448* (WS). Siskiyou Co.: near Dunsmuir, April 1925, *Reinvehl s.n.* (CAS). Tuolumne Co.: Coulterville, *Wolf 4877* (UC). Trinity Co.: N of Covelo, *Hitchcock 20025* (WTU). Yuba Co.: SE of Challenge, *Hitchcock 19539* (WS). Oregon, Curry Co.: N of Agness, *Hitchcock 19923* (WTU). Douglas Co.: W of Elkton, *Sundberg 84* (ORE). Jackson Co.: Cantrell-Buckley Campground, *Dimling 106*; Applegate L., *Dimling 107* (OSC); Forest Cr. Rd., *Dimling 108* (OSC). Josephine Co.: E of Murphy, *Dimling 126* (OSC); *Elk Cr., *Dimling 135* (OSC); *Manzanita Wayside, *Dimling 86* (OSC); *Walker Mtn., *Dimling 90* (OSC); *Waldo Hill, *Dimling 135*; *Longwood Fire, July 1989, *Wolf/Seda s.n.* (OSC); *Poker Cr., *Dimling 122* (OSC, ORE). Lane Co.: near Coburg, 4 May 1887, *Howell s.n.* (CAS). *Specimens originally annotated by Dimling as ssp. *asprella* var. *virgata* because of cauline leaves (see text).

4. *Sidalcea malvaeflora* (DC.) Gray ex Benth. ssp. *asprella* (Greene) C. L. Hitchc. var. *virgata* (T. J. Howell) Dimling comb. et stat.

nov.—*S. virgata* T. J. Howell, Fl. N. W. Am. 101. 1897.—*S. malvaeflora* ssp. *virgata* (T. J. Howell) C. L. Hitchc., Univ. Washington. Publ. Biol. 18:24. 1957.—LECTOTYPE: USA, Oregon, Marion Co., Silverton, June 1882, *T. J. Howell s.n.* (ORE!).

Representative specimens. USA, Oregon, Benton Co.: Corvallis, *Craig 53* (ORE); Sulfur Springs, *Wagner 72* (ORE). Douglas Co.: Glendale, *Howell 733* (ORE); Sutherlin, *Henderson 12622* (ORE); Yoncalla, *Henderson 12623* (ORE). Lane Co.: Hills Cr., *Detling 2814* (ORE); near Jasper, *Henderson 13501* (ORE); Cottage Grove, 14 June 1935, *Leach s.n.* (ORE). Polk Co.: W of Pedee, *Hitchcock 19317* (ORE); Yamhill Co.: Willamena, *Leach 3571* (ORE).

Intermediate between ssp. *asprella* and ssp. *virgata*: USA, California, Siskiyou Co.: E of Happy Camp, *Dimling 109* (OSC). Oregon, Josephine Co.: E of Merlin, *Dimling 89* (OSC); Robertson Br., *Dimling 92* (OSC); Leland, *Dimling 91* (OSC); Triller Ln., *Dimling 96* (OSC); L. Selmac, *Dimling 125* (OSC).

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